May 20, 1958 R. C. COLLINS 2,835,262

PORTABLE SHELTERS

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FIG. 1

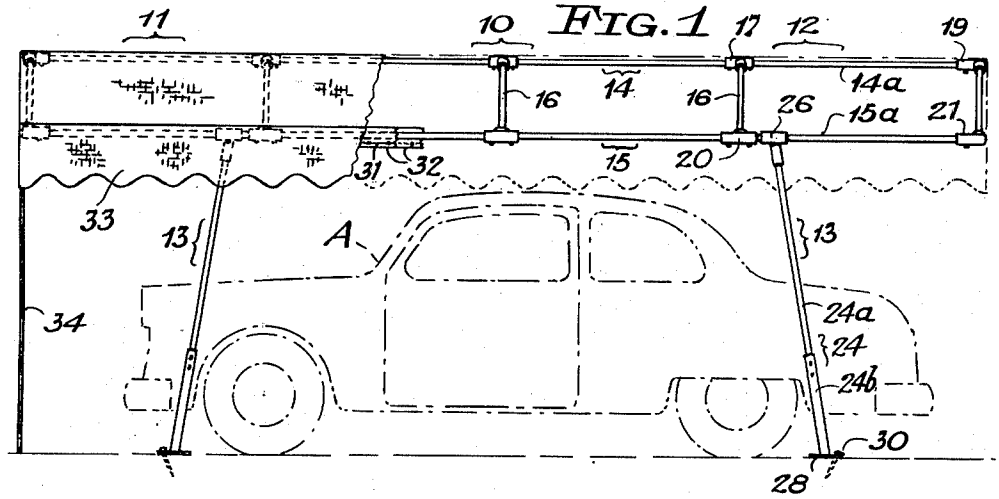
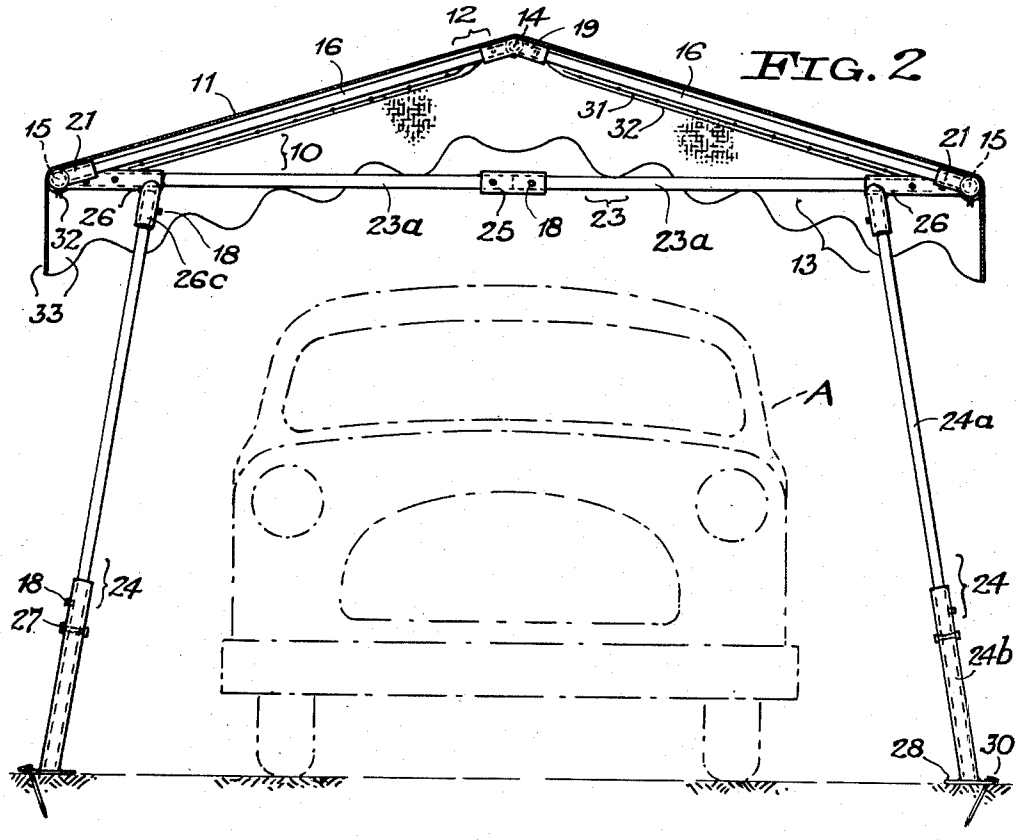


FIG. 2



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PORTABLE SHELTERS

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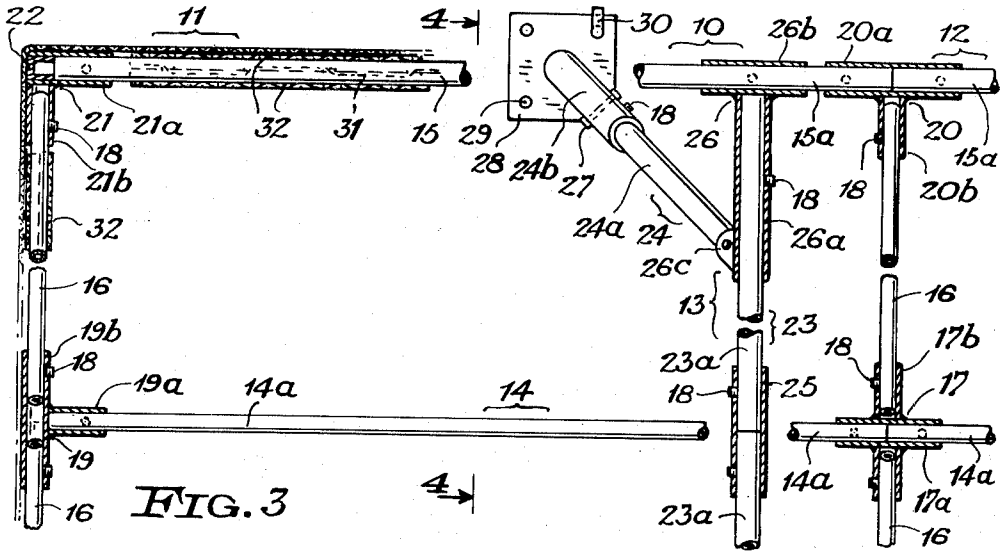

FIG. 3

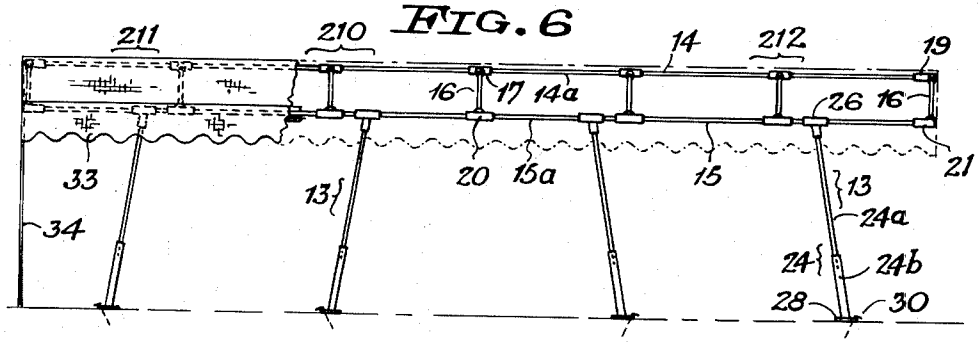

FIG. 6

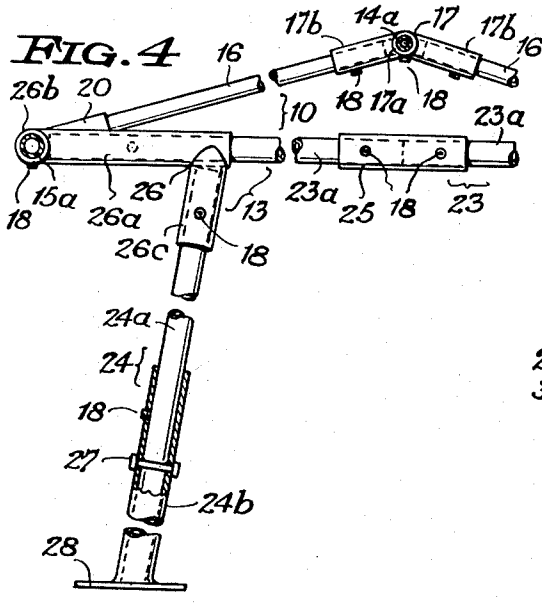

FIG. 4

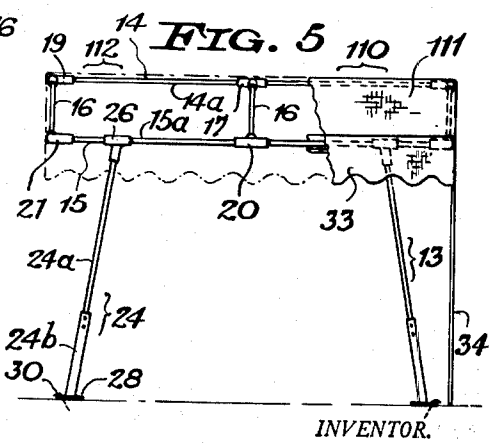

FIG. 5

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PORTABLE SHELTERS

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Application August 26, 1954, Serial No. 452,337

2 Claims. (Cl. 135—3)

The present invention relates to portable shelter structures.

An object of the invention is to provide an improved portable shelter of simple, durable, light-weight and inexpensive construction, and of neat appearance, adapted for use as a carport, tent, vending stand, and the like.

Another object is to provide a portable shelter having a frame of sectional construction which can easily be assembled and dismantled, and which when taken down is capable of being compactly packed, as for storage in an automobile trunk.

A further object is to provide a sectional frame construction which can be assembled to form shelter frames of various sizes.

A still further object is to provide a sectional shelter frame including improved connector fittings for bar elements of the frame.

The invention further consists in the several features hereinafter described and claimed.

In the accompanying drawings, illustrating certain embodiments of the invention,

Fig. 1 is a side elevational view of a portable shelter constructed in accordance with the invention and adapted to form a carport or garage, parts of a canopy or cover thereof being broken away;

Fig. 2 is an end elevation of the shelter, the canopy thereof being shown in section;

Fig. 3 is a fragmentary top plan view of the shelter frame, parts being broken away and parts being shown in section;

Fig. 4 is a fragmentary detail view of the shelter frame, taken generally on the line 4—4 of Fig. 3;

Fig. 5 is a side elevational view of a modified form of shelter of reduced length, parts of the canopy being broken away, and

Fig. 6 is a side elevational view of another modified form of shelter of increased length, parts of the canopy being broken away.

Referring to the form of portable shelter shown in Figs. 1 to 4 of the drawings, the numeral **10** designates a shelter frame assembly, and **11** designates a flexible cover or canopy supported thereon. The frame assembly or framework comprises a roof frame **12** supported by a pair of leg frames **13**, each frame being of sectional construction. The roof frame includes a horizontal ridge bar or center rail **14** and a pair of horizontal side bars or eave rails **15** parallel thereto, the ridge bar and side bars being connected as hereinafter described by rafter bars or rails **16**. The ridge bar **14** is formed of a plurality of endwise aligned tubular bar sections **14***a*, such as of thin-wall steel tubing, and each side bar **15** is formed of similar endwise aligned tubular bar sections **15***a* which are preferably of larger diameter than the ridge bar sections. Each rafter bar **16** is formed of a single tubular bar section identical with the ridge bar sections. All of the tubular bar sections **14***a*, **15***a*, and **16** are of the same length.

The aligned ridge bar sections **14***a* are joined by cross-

shaped connector fittings **17** each formed of a horizontal metal tube or sleeve **17***a* with inclined tubular side sockets **17***b* welded thereto, the branches of each fitting being each provided in their side walls with one or more socket set-screws **18**, such as Allen socket head screws. The adjacent ends of the ridge bar sections slidably fit in the sleeves **17***a* of the connector fittings **17** and are firmly but detachably secured therein by the associated set-screws **18**. The opposite ends of the sectional ridge bar are joined to T-shaped connector fittings **19** each including a horizontal socket tube **19***a* welded to the middle portion of an angularly bent socket tube **19***b*, the branches of each fitting **19** being each provided in their side walls with one or more set-screws **18**. The tubes or sleeves **19***a* of the connector fittings **19** slidably receive the ends of the ridge bar which are detachably secured therein by the associated set-screws.

The aligned bar sections **15***a* of each side bar **15** are joined by T-shaped connector fittings **20** each formed by a horizontal metal tube or sleeve **20***a* having a tubular side socket **20***b* welded thereto, and the opposite ends of each sectional side bar are joined to L-shaped connector fittings **21** each formed by socket tubes **21***a* and **21***b* welded together, the outer end of each tube **21***a* being closed by a plug **22**. The branches of the connector fittings **20** and **21** are each provided with one or more set-screws **18**. The socket tubes or sleeves **20***a* of the fittings **20** slidably receive the adjacent ends of the side bar sections which are detachably secured therein by the associated set-screws, and the socket tubes **21***a* of the fittings **21** slidably receive the outer ends of the side bars which are detachably secured therein by the associated set-screws.

The upper ends of the tubular rafter bars **16** slidably fit in the sockets **17***b* and **19***b* of the ridge bar connector fittings **17** and **19**, and the lower ends of the rafter bars slidably fit in the sockets **20***b* and **21***b* of the side bar connector fittings **20** and **21**, the rafter bar ends being detachably secured in place by the associated set-screws **18**.

Each leg frame **13** includes an upper cross bar or beam **23** and a pair of legs or posts **24** at opposite end portions of the cross bar. Each cross bar is formed of a pair of aligned tubular bar sections **23***a* which are identical with the side bar sections **15***a* and are detachably joined by a connector fitting **25** in the form of a coupling sleeve provided with set-screws **18**, the adjacent ends of the cross bar sections slidably fitting in the sleeve. The outer ends of the cross bar sections **23***a* are joined to the legs **24** and to the side bars **15** of the roof frame by connector fittings **26**. Each connector fitting **26** comprises a horizontal socket tube **26***a*, a horizontal end tube or sleeve **26***b* welded transversely to the outer end of the tube **26***a*, and a downwardly and angularly extending leg socket tube **26***c* welded to the inner end portion of the tube **26***a*, each branch of the fitting **26** being provided with one or more set-screws **18**. The outer ends of the cross bar sections **23***a* slidably fit in the socket tubes **26***a* of the respective connector fittings **26** and are detachably secured therein by the associated set-screws. Each leg or post **24** comprises telescopically fitting upper and lower bar sections **24***a* and **24***b*. Each upper leg section **24***a*, which is identical with the side bar sections **15***a* and cross bar sections **23***a*, has an upper end portion slidably fitting in the leg socket **26***c* and detachably secured thereto by the associated set-screw **18**. The lower end portion of each upper leg section **24***a* is seated in the tubular lower section **24***b* and is detachably secured thereto by a set-screw **18**, the lower extremity of the leg section **24***b* resting on a cross bolt **27** secured to the lower leg section. A ground-engaging base plate **28** is welded to the lower end of the leg sec-

tion **24***b* and has openings **29** adapted to receive one or more headed anchor pegs or stakes **30** which are driven into the ground.

The horizontal sleeves **26***b* of the leg frame connector fittings **26** have a slidable fit on the parallel side bars **15** of the roof frame and are detachably secured thereto in selected positions therealong by the associated set-screws **18**. The slidable sleeves **26***b* at the opposite ends of the leg frames can be shifted along the roof frame side bars when the set-screws **18** are loosened. The horizontal cross bars **23** and attached connector fittings **26** of the leg frames form cross beams tying together the opposite side bars **15** of the roof frame. The four inclined supporting legs **24** are downwardly divergent, thus providing a firm footing for the shelter frame.

The longest members of the shelter frame are the tubular bar sections **14***a*, **15***a*, **16**, **23***a*, and **24***a*. These bar sections are all cut to the same length, preferably about 4 feet 8 inches, so that they may be stored in an automobile trunk together with the other parts of the frame. By way of example the tubular bar sections **14***a* and **16** may be about 1 inch in diameter, and the tubular bar sections **15***a*, **23***a* and **24***a* may be about 1½ inches in diameter. The bar sections and connectors are preferably made of thin-wall steel tubing, but in some cases they may be made of lighter metals, such as aluminum or magnesium alloys.

The roof frame supports thereon the flexible cover or canopy **11** which is formed of suitable material such as canvas. The cover is detachably secured to the side bars **15** and end rafter bars **16** as by tie cords **31** laced to depending grommeted flaps **32** which are sewn to the inner sides of the cover and embrace these bars. The cover may be arranged in various ways and is here shown to include an ornamental valance **33** and a roll-up canvas wall panel **34**. If desired, additional similar wall panels may be provided at other sides.

In erecting the shelter structure, the roof frame **12** is assembled in inverted position together with the cross bars **23** and connector fittings **26** of the leg frames. The two legs for one side of the structure are then attached to the associated fittings and the structure is then righted, whereupon the other two legs are attached. The cover or canopy **11** is fitted over the roof frame and is lashed to the marginal bars of this frame. If the structure rests on uneven ground, one or more of the upper leg sections **24***a* are slidably adjusted in the sockets **26***c* of the connector fittings **26**, or in the lower leg sections **24***b*.

As shown in Figs. 1 and 2, the shelter is adapted to form a carport or garage for an automobile A which can be driven in or out at either end of the shelter. The supporting legs of the shelter are spaced well apart so as not to interfere with the travel of the automobile and the opening of the automobile doors. The shelter may also be used as a tent, vending stand, boathouse, beach-house, and the like.

In dismantling the knockdown shelter, the cover or canopy is removed from the roof frame, and the various frame members are separated after loosening the set-screws **18**. The frame members, together with the cover, are then collected in a compact bundle which can be accommodated in an automobile trunk.

In the modification shown in Fig. 5, the shelter frame assembly **110** and canopy **111** are reduced in length to two bar sections, some of the roof frame members being omitted, and the two leg frames **13** being moved closer to the ends of the roof frame **112**. The structure of Fig. 5 is otherwise the same as that of Fig. 1. A similar shelter three bar sections in length may also be provided.

In the modification shown in Fig. 6, the shelter frame assembly **210** and canopy **211** are increased in length to six bar sections, additional roof frame members being provided to form a roof frame **212**, and four leg frames **13** being used. The structure of Fig. 6 is otherwise similar to that of Fig. 1.

I claim:

1. In a portable shelter frame structure, a roof frame including a ridge bar and parallel side bars and rafter bars connecting said ridge bar and side bars, said ridge bar and side bars each comprising a plurality of aligned tubular bar sections, connector fittings detachably joining the bar sections of the ridge bar and side bars and detachably joining the rafter bars to said ridge bar and side bars, a plurality of spaced cross beams connecting said side bars, each cross beam including a pair of aligned, detachably connected tubular bar sections and further including detachably connected terminal connector fittings, said last-named fittings each including a horizontal sleeve and a downwardly projecting leg socket, said sleeves being open at both ends and slidably receiving said side bars therethrough in detachably secured relation, the ends of said roof frame side bars projecting from said sleeves, and supporting legs detachably secured to said leg sockets, each cross beam and connected supporting legs forming a leg frame shiftable to selected positions along said side bars.

2. In a portable shelter frame structure, a roof frame including a ridge bar and parallel side bars and rafter bars connecting said ridge bar and side bars, said ridge bar and side bars each comprising a plurality of aligned tubular bar sections, connector fittings detachably joining the bar sections of the ridge bar and side bars and detachably joining the rafter bars to said ridge bar and side bars, a plurality of spaced cross beams connecting said side bars, each cross beam including a pair of aligned, detachably connected tubular bar sections and further including detachably connected terminal connector fittings, said last-named fittings each including a horizontal sleeve and a downwardly projecting leg socket, said sleeves being open at both ends and receiving said side bars therethrough in detachably secured relation, the ends of said roof frame side bars projecting from said sleeves, and supporting legs detachably secured to said leg sockets, said ridge bar sections, side bar sections, rafter bars, and cross beam sections being all of substantially the same length, each cross beam and connected supporting legs forming a leg frame shiftable to selected positions along said side bars.

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